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自然资源丰裕对于印尼家庭迁移的影响

Impact of Resource Abundance on Internal
Migration in Indonesia

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摘要

在文献中，资源丰度和发展中国家内部的迁移模式之间的关系没有得到很好的研究。本文有助于文学作品通过研究资源丰度对印尼省级间迁移的影响。笔者首先用聚类分析进行分类，根据每个省的资源存量的估计并使用重力模型来探索资源丰富在印尼省级间迁移的影响。

笔者呈现资源丰富资源丰度对人均全省生产总值具有重要和积极的影响，可提升经济激励来吸引农民工。此外，使用 1980 和 2010 印度尼西亚的 26 个省中的面板数据集，笔者显示资源丰度对迁移决策有积极影响。具体而言，资源丰富的省份比非资源丰富的省份接受更多的移民。同时，资源丰富的省份比非资源丰富的省份也有更多的人迁移出去。更有趣的是，笔者发现的证据表明，这种迁移到资源丰富的省份是非永久性的。最后，提出了可能的原因。

本文进一步地助于文献，结合两股资源丰度和迁移的文献把重点集中在发展国家内部迁移。这些研究结果对目前正在开发省级经济的印尼政府具有重要的政策含义，尤其是爪哇岛以外的地区。

关键词：资源丰度; 印度尼西亚; 省际迁移模式

Abstract

In the literature, the empirical relationship between resource abundance and internal migration pattern of a developing country has not been well studied. This paper contribute to the literature by examining the effects of resource abundance on inter provincial migration in Indonesia. I first use cluster analysis to classify the resource abundance status of a province based on stock estimates of the resources in each province and then investigate the impacts of resource abundance on internal migration decisions using a gravity model.

I show that resource abundance has a significant and positive effect on the provincial GDP per capita, which could provide economic incentives to attract migrant workers. Furthermore, using a panel data set from Indonesia's 26 provinces during 1980 and 2010, I show that resource abundance has a strong positive effect on migration decisions. Specifically, Resource abundant provinces receive significantly more migrants than non-resource abundant provinces. At the same time, resource abundant provinces also have significantly more people migrating out when compared to non-abundant provinces. More interestingly, I find evidence that this migration into resource abundant provinces is non-permanent. Finally, the possible reasons for this migration pattern are proposed.

This paper further contributes to the literature by combining the two strands of resource abundance and migration literature to focus on the internal migration of a developing country. These findings have strong policy implications for the Indonesian government who is currently trying to develop the provincial economies, especially the regions outside of Java Island.

Keywords: Internal Migration; Indonesia; Resource Abundance; Gravity Model; Policy

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Chapter 1: Introduction

1.1 Background and Motivation

The empirical relationship between resource abundance and internal migration pattern of a developing country has not been well studied in the literature. This paper examines the empirical relationship between resource abundance and migration decisions in Indonesia's provinces. Indonesia is a country endowed with huge reserves of a variety of resources this has been highly important for Indonesia.

The impact of resources abundance in a certain region has been a topic that has attracted considerable attention and divided economists. The debate on whether resource abundance is a positive factor or a negative factor for the economy of a region is still inconclusive. Those who observe countries such as Mexico, Brunei Darussalam, a number of African countries, including Nigeria, can point to the claim that abundance of natural resources is a negative influence to the economic growth and other metrics of a particular region (such as life expectancy, years of schooling, etc.). Such a phenomenon is popularly termed by Auty (1993) as resource curse. Coupled with the vastly superior economic track record of top economic-growth countries such as Japan, South Korea, Singapore and Ireland which have very little, or no natural resources to extract, it seems to support the idea that natural resources is a negative determinant of economic growth. Sachs and Warner (1995) showed, in an investigation of 96 countries, that natural resources is a common trait amongst countries who have low growth rates in the period between 1971-1989.

The other side of the argument however, can point also to the countries that have been able to manage their natural wealth in order to grow as an economy. Countries such as Norway (oil reserves); Botswana (diamond); USA (various commodities such as oil and gold) and also Australia (iron ore, natural gas, and coal deposits).

Whether positive or negative, the literature does agree that natural resource abundance is a strong influence on the economy of a region/ country. What is less understood is what impact does this have on the migration pattern of that country. This paper aims to link the existing literature on motivations behind migration decisions and the level of natural resource abundance of the migration destination area.

This paper contributes to the literature by investigating the effects of being resource abundant on the migration pattern of people in Indonesia. The focus of investigation is on Indonesia's 26 provinces and the migration pattern between them. Cluster analysis is used to classify the provinces based on their levels of resource abundance and then the impact that this has on the migration pattern is investigated using gravity model. The findings of this paper provide evidence that resource abundance status of a province has a significant and positive influence on the level that people migrate into and out of that province. Furthermore, the migrations into the resource abundant provinces seem to be temporary; this behaviour is highly unexpected and interesting, and reasons behind it present a possible topic for further study.

Indonesia is a highly interesting country to investigate for many reasons; its huge reserve of various natural resources is an important factor; its diversity in provincial economies is also crucial. Another important factor is that migrations between the provinces are not restricted by government regulations.

Closer Look: Indonesia



Figure 1: Indonesian Provincial Map. This is a 2013 map, where there are 33 provinces. In this paper, the original 1980 definition of 26 provinces are used. East Timor has declared independence and is no longer a part of Indonesia.

Source: <http://www.geocurrents.info/geopolitics/border-disputes/north-kalimantan-indonesias-newest-province-and-southeast-asian-geopolitical-tensions>

A degree of context will be necessary when focusing on a particular country and its provinces. To appreciate the challenges and potentials of the vast deposits of natural resources that Indonesia owns, it will be helpful to have a degree of understanding of it's the country.

Indonesia is a country rich in natural resources. It is the world's largest exporter of coal in 2012 and the 4th largest exporter of liquefied gas in 2013. It also had abundant oil reserves; until 2008, Indonesia was a member of the worldwide oil producing nation's oligopoly, OPEC. Its exit was due to its oil reserves rapidly diminishing and thus unable to fulfil its export obligations. Furthermore, Indonesia also has the world's biggest gold mine and the third largest copper mine in the world. These statistics highlight the vast natural resource abundance that Indonesia has.

Indonesia is a large country; its territory spans the distance larger than that of Europe. As can be seen from figure 1 and figure 3, it has 5 main island regions, over 16,000 small islands and is the world's 4th most populous nation. It has had a long history in its struggle for independence. Indonesia is classified as a developing country and is a relatively young country, only gaining independence in 1945, but what is often forgotten in this discussion is that prior to the invasions, Indonesia was a number of separate nation/ kingdom states. The separate entities were largely divided by the 5 major islands, and that Indonesia and its territories would not have been what it is today without the invasions. This aspect highlights the diversity in terms of culture, language, as well as the geographical challenge.

Indonesia has a population density issue, with over 60% of its population living in Java island in 2005, which has just below 10% of the landmass. The other major islands' economies are mainly agricultural and/or mining and much less densely populated. Modern urban developments are rare and the provinces can range from rural-agricultural, rural-plantation regions to forest-primitive areas. This aspect of Indonesia is also another characteristic that is missing in literatures that are analysing developed economies such as United States or Australia, and is another aspect that must be considered when analysing some of the aspects that will be covered in this paper.

Another important aspect that is unique to Indonesia is its government-sponsored internal migration program, which runs until the year 2000. This program is the world's largest government-supported internal migration program and it had huge repercussions on the migration pattern of Indonesians. This program was conducted to address a number of issues but the main one being the population density imbalance issue and the lack of economic

development on the other main islands. The participants are eligible families in Java (who are in the age range, and are from agricultural background) and generous incentives of agricultural land, seeds and cash are provided to those who are willing to participate in this migration program.

Indonesia has had democratically elected governments since 2000; and since 2004, a greater emphasis has been to reduce the power, authority, and decision making process from the central government in Jakarta on behalf of provincial level governments, giving the regional governments more authority and space in making local decisions and managing local resources. This is different to the common examples of countries which are referred to in literatures which have the resources curse. A large number are countries where democracies and decentralised governance are rare, such as Venezuela, Russia and Nigeria.

In the case of Indonesia, in the period prior, the revenues (including that of mining) flow from the regions to the centre, and this is gradually becoming less and the central revenues gets redistributed more. This should allow the previously under-developed areas of Indonesia grow faster as a result.

Indonesia is a highly interesting case to be investigated for any links between resource abundance and internal migration. The findings of this paper will be highly valuable to the existing literatures on migration and will also provide interesting insights for the Indonesian government who are trying actively to pursue greater development of the regional areas.

The remainder of this paper is organised as follows. Remainder of section 1 will go through the relevant theories and literature review. Section 2 discusses data and empirical methodology. Section 3 presents the empirical results and section 4 concludes.

1.2 Literature Review

The main line of research on resource curse usually focuses on the impact of resource abundance and its impact on economic indicators such as GDP, income per capita and human development index; and largely these analyses were done on a country level (Sachs and Warner, 1995, 1999, 2001). In this literature review I will explore the two different strands of literature, first on the resource abundance theory and second on the migration theory, and I will combine the two and form conclusions on how resource abundance may affect migration pattern.

i. Literatures on Resource Abundance

The economic theory of having abundant natural resource is that it's a potential source of income and thus should provide positive economic contribution; but in reality this is more often than not, a rarity rather than normality. In the case of many resource-rich countries, these easy riches, according to Sachs and Warner (1995, 1999, 2001), has led to sloth, poor governance, low development of human capital, corruption in the rent-seeking process (Auty 1998, McMahon 1997, Ross 1999) and majority of the economic benefits to fall only to a privileged few. In some cases, such as Nigeria's Oil, or Indonesia's abundant gold deposits, the majority of the economic benefits go to the multinational companies who have been able to gain access and extract the resources, bypassing the local economies.

Another popular explanation is from the 'crowding out' theory; where some researchers believe that the traded-manufacturing sector is the engine of economy (Sachs and Warner, 1995, 1999), with higher returns on investment, but has become crowded out by the resources industry. Other things that are associated with a resource dependent economy, such as high currency, is also not beneficial for non-resources industries who are involved in exports, education or tourism as found in Peru, in Mikesel (1997). As a result, resource abundance can negatively impact an economy.

Fahr (2002) looked at 51 countries which have mining as a substantial source of GDP and found that the economic performances of these 51 countries vary greatly. She compared countries that have been able to build on their resources wealth to those that merely plunder it and found some differences that may explain the economic performances.

She concluded that the quality of the economic management and the quality of the institutions are the key difference between plundering and managing and harvesting this resource abundance.

One of the disagreements that can be found in the literature on resource curse is on how to measure resource abundance. A number of the early, influential literatures on resources curse measures the level of resource abundance by the share of mining output in a country/region's GDP. This has the advantage of clearly identifying regions/ countries that rely on mining as a significant source of GDP, and also contain the assumption that regions which are abundant in natural resources will exploit this and thus monetize this asset. The main criticism of this measurement method is that it actually identifies regions that are resource-abundant and also resource-reliant. By this measurement, it is possible that countries/regions which have well diversified economies and a strong mining sector may appear less "resource abundant" due to the good economic management practiced in that region. In a number of recent papers, an alternative method to gauge and measure resource abundance has been proposed, in which the estimated amount of resources within a particular region (usually based on the estimates published from that government's natural resources department) is used a way to classify whether a region is resource abundant or not. Brunnschweilera & Bulte (2006) is one of the recent waves of literatures questioning the commonly accepted method of mining share of GDP as a barometer of resource abundance. This will be the methodology used within this paper as a way to gauge resource abundance as this provides a more exogenous measure of resource abundance, rather than just simply resource-reliance.

A number of recent researchers have shone light on the impact of resource abundance on a more specific level, such as the provinces and counties/suburbs of a particular country. One of the motivations behind doing this analysis is the question whether the resource abundance is the most important factor, or whether there are other factors such as quality of governance (Fahr, 2002), the quality of democracy, extent of market competition and access to capital are more important factors. It has been noticed that countries in Africa that failed to make use of their resource blessings share a number of traits such as the lack of democratically chosen government, weak local institutions and high levels of corruption/ rent seeking (Jensen and Wantchekon, 2004). The argument is that when comparing country to country, the variation in these factors may be large and thus the analysis of resource abundance become more difficult to isolate and investigate. In the other hand, economies within the same country

should theoretically less variation of factors mentioned above, such as quality of government institutions (Papyrakis and Gerlagh, 2006)

A number of literatures have aimed to provide insight on the effects of resource abundance on the provinces within the one country. Papyrakis and Gerlagh (2006) used the mining share of GDP as the basis of 'abundance' and focused on impacts of resource abundance on a number of economic metrics on a state level, in the US. He found that resource abundance was found to be a negative determinant on the economic growth via a number of transmission channels such as education, investment, openness and corruption.

In Michaels (2010), the author focused on an even more specific level, namely oil and gas abundant counties in the southern region of USA. This paper found the presence of abundant oil and gas deposits in the southern region of USA has contributed positively on many indicators such as population density, median family income. James & Aadland (2009) performed analysis on county level in the US but on a bigger scale. In contrast to Michaels (2010), he used the mining share of GDP as the basis of 'abundance' variable and found strongly different conclusions to Michaels (2010). He found that resource-dependent counties have slower economic growth and thus his findings support the resources-curse theory.

This difference in conclusions seems to indicate that there is more to the resource curse than just the quantity of resources available. There seems to be an agreement amongst the literature that abundant natural resources can be a positive influence; but failure to diversify and manage it tend to lead to negative outcomes for the economy. The regions/countries that have been able to benefit the most from the abundant natural resources are the ones that have managed this wealth well. Since the management of the resource-abundance seems to be the deciding factor (and not the resource-abundance itself), and since the management of resource-abundance is much more abstract and difficult to measure, I believe this is why there are disagreements within the literature. In this paper, I will not try to judge whether resource-abundance is positive or negative in general, but rather to focus on its impacts on migration in Indonesia.

ii. Literatures on Migration

Although there have been very few literatures investigating the direct impacts of natural resources abundance on internal migration within a country, a wealth of literatures exists on the topic of migration in general. On the topics of motivations for migration, a number of commonly accepted theories exist. One of the commonly accepted theories behind migration

motivation is for economic betterment of the subjects involved. People will move to a new area if they believe they will gain net economic benefit (after counting the cost of migration and opportunity losses involved) from the migration decision (Sjaastad, 1962). Factors such as agglomeration effects will also come into play and encourage migration into a particular region. Distance is also found to be negatively related to the number of migrants moving to a particular area.

A number of literatures have focused on the internal migration within a country. Van Lottum et al (2010) focuses on the internal migration between the provinces of Indonesia and found strong evidence to support the existing theories of why people migrate. He found that higher GDP per capita of the destination province is a strong motivation, while greater distance has an inverse relationship to the level of migration. He also found that the capital city is a strong determinant for migration, likely because of the economic reasons and also the higher quality of facilities available there.

iii. Connection between Resource Abundance and Migration

Despite the existence of a lot of research projects devoted to examine the impacts of resource abundance and the determinants of migration decisions, the connection between resource abundance and migration has not been explicitly investigated in the empirical literature, to my best knowledge. However, if resource abundance is a blessing or curse to local economic developments and migration is largely motivated by economic reasons, a connection between resource abundance and migration seems to naturally exist, as illustrated in figure 2 below.



Figure 2: Connection between resource abundance and migration

Referring to figure 2, first, I don't expect resource abundance could have a direct impact on migration because natural resources are not environmental amenities. Their existence alone should not have any attraction to migrant workers.¹ Second, resource abundance could be a blessing or curse to local economic performance, which is an empirical question that we need to investigate. Third, better economic performance could attract migrant workers. On the other hand, the inflow of migrant workers could further help local economy develop. We don't rule out this important self-enforcing effect, but given the data limitation, we are only able to focus on the net impacts of resource abundance on migration.

Both the first and second points explain it is important to first examine how resource abundance affects local economic development before its impacts on migration are investigated. The next sections will aim to establish the relationship between resource abundance and internal migration for Indonesia

¹ Entrepreneurs and investors may enter a province due to the resource abundance that exists there, but the number of people in this category is likely to be very small because there are huge economic and political constraints to own and operate a mining company in Indonesia. On the other hand, those people attracted to a resource-abundant province also mainly for economic values that could be generated from those natural resources.

Chapter 2: Data and Methodology

2.1 Data

The data used in this paper comes from a number of different sources. The Indonesian census data for 1980-2010 is obtained from iPUMS International, a non-profit organisation based in US focusing on organising and providing census data from countries around the world.

Abnormalities in census data mean that in 1995, population data was not available for a number of provinces, and in 2005 census data, the province of Aceh was also excluded due to the civil war that was raging at the time in that area.

There have been a number of new provinces since the year 2000, from the original 26 provinces in 1980 to the 33 provinces in 2010. All of the new provinces are formed from an old province, meaning that by the old province definition can still be used by adding the new province data to the data for the old provinces. For this paper, the original 1980 definition of 26 provinces will be used for consistency purposes. Migration is defined as living in a different province 5 years ago and this information was taken from the census data.

The transmigration data is obtained from United Nation's 2009/10 Human Development Research Paper on Indonesia. It contains the governmental records of the number of families that participated in the transmigration program from the period 1970-2000.

The annual provincial GDP data and the annual provincial employment divided by sector is obtained from the library of Indonesia's Bureau of Statistics (BPS). The GDP breakdowns of each province is shown in figure 2. Due to the limitations of availability on the electronic copy format, considerable efforts had to be expended in order to gain access to the hard copy version of this data, which is only available in the Indonesian Head office in Jakarta. The GDP breakdown by sector is provided in the graph below and it provides background on the major sectors in each province, in 1980 and also in 2010.

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